North Central Mathematical Bulletin

The Newsletter of the North Central Section
of the Mathematical Association of America

Spring 2010, Volume 13, Number 1

UPCOMING MEETING

Hope to See You at the University of St. Thomas in St. Paul!

The University of St. Thomas will host the MAA-NCS Spring Meeting, April 23-24.

Our two invited speakers for the spring meeting are **Ivars Peterson** (Director of Publication and Communications at the MAA) and **Danrun Huang** (St. Cloud State University).

A program for the Spring 2009 meeting will be posted approximately one to two weeks on the MAA-NCS website prior to the meeting.

INVITED SPEAKERS AND BIOGRAPHIES

- Ivars Peterson, Director of Publication and Communications at the MAA

    Ivars Peterson is Director of Publications and Communications at the Mathematical Association of America in Washington, D.C. For more than 25 years previously, he was a writer at *Science News*. He also served as editor of *Science News for Kids*, and *Science News Online* and wrote the weekly online column *Ivars Peterson's MathTrek*.

    Ivars Peterson received his education from the University of Toronto, where he earned a Bachelor of Science degree (majoring in physics and chemistry) and a Bachelor of Education degree. He taught high school science and mathematics for eight years. In 1980, he left teaching to obtain a master's degree in journalism from the University of Missouri in Columbia. He served as an intern at Science News in Washington, D.C., then joined the weekly magazine's staff.

    Ivars Peterson has made presentations at schools, colleges, professional meetings, banquets, and many other venues before diverse audiences, ranging from students and classroom teachers to NASA engineers and math enthusiasts.

    Abstract: With astronomical questions inspiring new mathematics, the remarkable insights of Johannes Kepler, Isaac Newton, and Henri Poincaré paved the way to celestial mechanics and modern notions of chaotic dynamics. The result is a new picture of a solar system less placid and predictable that its venerable clockwork image would suggest.

- Danrun Huang, St. Cloud State University

Danrun Huang is a Professor of Mathematics at St. Cloud State University. After earning his Ph.D. from the University of Maryland in 1992, he became a postdoctoral fellow at the Mathematical Sciences Research Institute at Berkeley. Afterwards, he taught for four years at the University of Washington in Seattle before coming to The Land of 10,000 Lakes in 1997. He is also an Adjunct Professor at the University of Michigan-Shanghai Jiao Tong University - Joint Institute in China.

His research interests include dynamical systems and operator theory. The interplay between these two areas enabled him to solve some well-known and long-standing classification problems in both symbolic dynamics and Cuntz-Krieger C*-algebras, which earned him a ticket to "the Crelle's Journal" where Abel, Cantor, etc., published their papers. He is a reviewer for AMS MathSciNet and has served on the editorial board of MAA Classroom Capsules and Notes since 2006. He received the MAA North-Central Section Award for Distinguished Teaching in 2009.

When not doing math, he enjoys long walks along the Mississippi River.

Abstract: In addition to classical applications, this semester, I was looking for a class project that not only links the basic "dots" of a typical ODE course, but also contains room for imagination and further developments; a project in which one uses both theory and technology and that is fun even to math-apathetic students. Finally, I found the Romeo-Juliet love-hate model initiated by Steven Strogatz and a play written by McDill and Felsager. By analyzing and generalizing this model in different directions, the project has brought students many expected and unexpected benefits. People might be amazed by the students' creativity in this project, such as how do the moons (yes, more than one), or drugs affect the relationship, and how to we design a love affair that is more chaotic than Tiger Woods',...

OFFICER REPORTS

President's Report

John Holte, Gustavus Adolphus College

Thanks to a host of people working behind the scenes, the meetings and activities of the North Central Section have been very successful. As we come to the end of another academic year, I would like to take this opportunity to thank some of them (with apologies for the many omissions).

A special thanks to past-President Su Dorée, who is now completing her term. I found her wise counsel and guidance to be indispensable to me in my role this year as president. Thanks to outgoing Member-at-Large Namyong Lee for his service on the executive committee and for preserving the historical record that Gerry Bergum provided at last spring's section meeting. We owe a debt of gratitude to Shawn Chiappetta, who is completing a three-year stint as Information Officer, for his excellent work in maintaining the section web site and editing the section newsletter, among other things.

Jennifer Galovich has been an outstanding Governor representing the section for the last three years. She is indefatigable in her efforts on behalf of the section. And thanks to her, St. John's hosted an excellent summer seminar with Jesus de Loera in 2009.

The NCS also has others working behind the scenes. I would like to acknowledge in particular Dan O'Loughlin and Dan Kemp, who are completing their three-year terms (this year as chairs) on the selection committees for the Distinguished Teaching Award and Meritorious Service Award, respectively. I would also like to acknowledge the ongoing efforts of Jerry Heuer (with Ron Rietz working in the background) for running the popular and successful NCS team mathematics competition.

I look forward to seeing many of you at the spring meeting at St. Thomas. Ivars Peterson, the author of many popular books on mathematics, will be our featured speaker, and thanks to Jason Douma, Su Dorée, and Peh Ng, he will also conduct a writing workshop with Paul Zorn on Friday afternoon.

Secretary's Report

Joel Iiams, University of North Dakota

The Fall Meeting of the North Central Section was held at the University of North Dakota on October 23-24. There were 50 people in attendance. Invited speakers were Francis Su from Harvey Mudd College, and Brett Goodwin from the Biology Department at UND.

The Spring meeting is scheduled for April 23-24 at the University of St. Thomas. Details and a call for papers are elsewhere on this webpage.

Treasurer's Report

Randy Westhoff, Bemidji State University

I would like to thank the following colleges and universities for becoming institutional members of the North Central Section. As in previous years all proceeds will be used to support our Section NExT program.

Augsburg College	Bemidji State University	Bethel University	Carleton College
Concordia College	Concordia University, St. Paul	Gustavus Adolphus College	Macalester College
Minnesota State University, Mankato	Normandale Community College	North Dakota State University	Northern State University
Saint Mary's University	South Dakota State University	St. Cloud State University	St. John's University/College of St. Benedict
St. Olaf College	University of Manitoba	University of Minnesota, Duluth	University of Minnesota, Twin Cities
Williston State College		Winona State University	

If your institution is not listed and you would like to become an institutional member the cost is $25 and checks (made out to NCS-MAA) can be sent to me at the address below. If you would like an invoice, please let me know and I will send one out. Thanks again and I'll see you at the spring meeting.

Randy Westhoff, Treasurer
North Central Section - MAA
1500 Birchmont Drive NE, Box 23
Bemidji, MN 56601
rwesthoff@bemidjistate.edu

Student Activities Coordinator's Report

Peh Ng, University of Minnesota-Morris

Thanks again to all who contributed to or participated in the undergraduate student sessions, discussions on Effective Math Clubs, and the Math Jeopardy event at the Fall 2009 NCS-MAA Meeting at the University of North Dakota. A summary of the discussions on Effective Math Clubs can be found at the link: www.morris.umn.edu/~pehng/NCSFall09-Clubs.pdf

For the Spring 2010 NCA-MAA Meeting at the University of Saint Thomas, we plan to have an Poster Session featuring undergraduate and graduate student research, and also undergraduate students' oral presentations session. Please encourage your undergraduate research students to submit an abstract for this meeting.

CAMPUS NEWS

Augsburg College

Su Dorée was promoted to the rank of Professor. Congratulations Professor Dorée!

Jody Sorensen formed a mathematics history reading group supported by an Associated Colleges of the Twin Cities grant. So far the group (consisting of faculty from St. Thomas, Macalester, Concordia and Bethel) has read articles on topics from Babylonians to cubics. If interested in joining the reading group, please contact Jody Sorensen at sorensj1@augsburg.edu. *(submitted by Matt Haines)*

Bemidji State University, Bemidji

This spring **Ivy Knoshaug** is retiring from our mathematics program after 29 years of distinguished teaching and service to Bemidji State University and our section. Ivy received the Bemidji State University Award for Distinguished Teaching in 1994 and the North Central Section Award for Distinguished College or University Teaching in 2005. She received the North Central Section Certificate of Meritorious Service in 2001 and the national Certificate of Meritorious Service in 2006. Ivy has served the university as Director of the Honor's Program and the University Marshall for a number of years. She has served the section as Newsletter Editor and President. Please join our faculty in congratulating Ivy on an extraordinary career and wishing her the best in her retirement. *(submitted by Randy Westhoff)*

College of St. Benedict/St. John's University

Kris Nairn successfully completed her sabbatical, spent at the MSRI at Berkeley investigating tropical geometry and gauge theory. In addition, Kris is the principal investigator for an exciting NSF grant to encourage women to pursue majors and careers in math, physics, computer science, and engineering. (That explains some of the letters in the acronym MapCores. You can speculate on the rest or ask Kris.) The first class has almost successfully survived their first year here. During this time, they have begun their evolution into young members of the scientific community, making all of us excited to welcome the new cohort for next year.

Bret Benesh has been awarded a sixth time release next year to work on a textbook for the elementary education math classes that he is writing.

Gary Brown spent the first part of his sabbatical this spring in Costa Rica. He is currently in California, where we trust he is continuing to write.

We have five students doing honors theses in mathematics this year: Lindsay Baun, Sean Buermann, Laura Buggy, Jason Lutz and Karla Schommer. Four students have been awarded summer research fellowships, which will likely lead to theses next year: Sara Kokkila, Kristin Reinsvold, Cong Van and Wenzhi Wang. Some others are considering theses in mathematics as well. *(submitted by Tom Sibley)*

Dakota Wesleyan University

Dr. **Joan Lubben** joined our faculty this year. Joan completed her Ph.D. degree in 2009 from the University of Nebraska at Lincoln, and she has a B.A. degree in geology from Rice University in Texas. Her doctoral thesis was entitled "Modeling and Analysis of Biological Population," and her ongoing research interests include developing population models that can be used to guide management of populations of both plants and animals, help control invasive species, and improve the viability of endangered or threatened species.

Dr. **Michael Catalano**'s paper "College Algebra in Context: A Project Incorporating Social Issues" appeared in the most recent issue of "Numeracy: Advancing Education in Quantitative Literacy," a journal published in an online format by the National Numeracy Network (http://services.bepress.com/numeracy/). The article describes the development of "Algebra: Modeling Our World," a college algebra text written by Catalano that is currently used at DWU. The text incorporates a variety of real-world examples, especially those related to social issues like hunger, poverty, energy and the environment. *(submitted by Michael Catalano)*

Gustavus Adolphus College

This semester the Gustavus Adolphus department of Mathematics and Computer Science welcomes **Russ Park** as a new faculty member. Russ earned a B.S. in EE from San Diego State, worked 18 years in engineering, and recently completed a Ph.D. in applied mathematics from Arizona State.

The Hillstrom Museum of Art's exhibition of Henry Schnakenberg's Dominoes features "an essay co-written with **Carolyn Pillers Dobler**, Professor and Chair, Department of Mathematics and Computer Science, which will consider Schnakenberg and his career, and the elements of pattern and chance that can be discerned in the painting." Carolyn also won the Faculty Service Award last October. *(submitted by John Holte)*

Minnesota State University-Moorhead

Professor **Denny Rhoads** is retiring this May after 29 years with the mathematics department. Denny was instrumental in setting up computer labs and office computers for the department. He plans to fish more in retirement.

Martha Nelson has been teaching for us this spring. Martha has an MS in statistics from North Dakota State University and has been teaching some of our statistics classes. *(submitted by Wally Sizer)*

Normandale Community College

Normandale welcomed two new unlimited (tenure-track) mathematics faculty this past fall: **Christopher Danielson**, from the Mathematics Department at Minnesota State University, Mankato, and **Judy Stucki**, retired from Wayzata High School and moving from full-time temporary status at

Normandale. Two Department members – **Karen Anderson** and **Jim Polzin** – are on full year sabbaticals; **Tom Sundquist** is on half-year sabbatical leave this spring.

The Department will offer two new courses this coming academic year: a three-credit Mathematical Modeling course in fall, 2010, developed by **Ghidei Zedingle**, and a four-credit Linear Algebra with computer applications in spring 2011, developed by **Tom Kersten**. These courses will continue to add new offerings to our upper-level courses and join Math 2700, Fundamentals of Mathematical Proof, for students interested in a Mathematics major.

At the end of spring semester, **Mark Ahrens** will take over the Chair position from **Christopher Ennis**, who has served the Department with distinction for the past five years. *(submitted by Peggy Rejto)*

Saint Mary's University of Minnesota

The Saint Mary's math department this fall welcomed its newest faculty member: Dr. **Kristen Sellke** (University of Iowa). Dr. Sellke finished a three year teaching post-doctorate at the University of Connecticut before arriving at Saint Mary's. Another faculty member, Dr. **Todd Iverson**, was selected to participate in the Project NExT.

The department is currently in the middle of a NSF grant to encourage more women to study mathematics. During the fall semester, the department invited Dr. **Catherine Crawford** from Elmhurst College to give a presentation and to work with potential women math majors for a day. With the grant continuing next year, the department plans to bring in two more notable women mathematicians.

Saint Mary's is also pleased to announce that Chris Fisette, class of 2009, has his senior research project featured on the mathaware website: www.mathaware.org/mam/2010/essays/ *(submitted by Kevin Dennis)*

University of Minnesota, Duluth

Bruce Peckham has won two awards: UMD's annual Jean G. Blehart Distinguished Teaching Award AND the Outstanding Faculty Advisor Award for Swenson College of Science and Engineering. *(submitted by Joe Gallian)*

SECTION NExT

Designed for new college and university faculty in the mathematical sciences, Section NExT (New Experiences in Teaching) is a professional development program that addresses the full range of faculty responsibilities including teaching, scholarly activities, and service.

Each year, applications will be solicited for new MAA-NCS Section NExT fellows to serve for a two year term. We will accept applications from faculty who are within the first four years of beginning full-time employment with teaching responsibilities at the college or university level. The application consists of a short personal statement and a letter of support from the department chair, guaranteeing financial support for transportation, meals, and lodging at the fall and spring meetings of the North Central Section.

The MAA-NCS Section NExT will meet April 23, 2009 at the University of St. Thomas in St. Paul, Minnesota as a joint Writing Workshop led by Ivars Peterson and Paul Zorn immediately prior to the NCS Spring Meeting. Details about the MAA-NCS Section NExT program and its spring meeting may be found at http://pages.usiouxfalls.edu/maa/next/index.html.

CONFERENCES AND ACTIVITIES

31th Annual Pi Mu Epsilon Conference

CSBSJU hosting our thirty-first annual Pi Mu Epsilon Conference on April 16 and 17, featuring student speakers. Encourage your students to come and to give talks. Contact Kris Nairn (knairn@csbsju.edu to register speakers or find out more information. We are very fortunate to have Professor **Claudia Neuhauser** of the University of Minnesota – Rochester as our principal speaker. Claudia will speak on "Modeling Spatial Dynamics: from theory to the field to the lab". The talks will introduce a mathematical framework for modeling complex spatial interactions among agents, such as the spread of an epidemic in a geographically dispersed population or competitive interactions between two species in a spatial habitat, including case studies.

North Central Section Writing Workshop

Friday, April 23, 2010
3:30 to 5:30 pm
at University of St. Thomas
Owens Science Hall (OWS) Room 257

FUTURE SECTION MEETINGS

Spring 2010	University of St. Thomas	April 23-24
Fall 2010	University of Sioux Falls	October 22-23
Spring 2011	Carleton College	TBD

INFORMATION FOR CONTRIBUTORS

Submissions should be sent electronically (preferred method) to the shawn.chiappetta@usiouxfalls.edu or mailed to:

Shawn Chiappetta
Natural Sciences Area
University of Sioux Falls
1101 W. 22nd Street
Sioux Falls, South Dakota 57105